

ABSTRACT

A new method is provided for manufacturing a gate electrode. A layer of gate material, such as polysilicon, is deposited, patterned and etched, defining the poly gate electrode structure. LDD and pocket impurity implants are performed, the LDD profile is created by a rapid thermal anneal. Next and of critical importance to the invention, a N₂ or O₂ or N₂ based plasma treatment is performed to eliminate defects in the exposed surface of the silicon substrate and sidewalls of the defined gate electrode that occur as a result of the etch of the layer of gate material. Then gate spacers are formed.